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1. (Twice Amended) A process for isolating a proteinaceous material in an aqueous sample comprising the steps:

- (a) providing the aqueous sample comprising the proteinaceous material,
- (b) contacting the aqueous sample with a solid phase having a surface comprising a mixture of hydrophobic groups and hydrophilic groups for binding the proteinaceous material to the solid phase,
- (c) removing unbound components from the solid phase of (b), and
- (d) thereafter, isolating the proteinaceous material by eluting the proteinaceous material from the solid phase.

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13. (Twice Amended) The process according to claim 4, wherein after eluting the proteinaceous material from the magnetic particle, the magnetic particle is removed by magnetic separation.

REMARKS

The final Office Action of June 28, 2002 has been received and carefully noted, and the foregoing amended claims and comments set forth below are a complete response thereto.

Claims 1-11 and 13-15 are all the pending claims. By this Amendment, Claims 1 and 13 have been amended as follows:

Claim 1 is amended to reinstate the phrase "a solid phase having a surface comprising a mixture of hydrophobic groups and hydrophilic groups" and which finds support in original Claim 1; and

Claim 13 has been amended to depend from claim 4.

Since these features of the invention have been previously argued and/or considered by the Examiner, Applicants submit that these amendments do not raise any new issues requiring further search and/or consideration. No new matter has been added, and consideration and entry of the amended claims is requested.

Applicants gratefully acknowledge the Examiner's withdrawal of the following rejections of the claims based on Applicant's Amendment of April 1, 2002:

Claims 1-15 under 35 U.S.C. §112, first paragraph;

Claims 1-15 under 35 U.S.C. §112, second paragraph;

Claims 8 and 12 under 35 U.S.C. §102(b) over Belew;

Claims 7, 8 and 12 under 35 U.S.C. §102(e) over Smeds; and

Claims 1-14 under 35 U.S.C. §103(a) over Wang in view of Belew or Smeds.

I. Response to Objection to Claims 4, 5, 10 and 15

Claims 4, 5, 10 and 15 depend from a rejected base claim but are otherwise allowable.

Applicants respectfully submit that in view of the foregoing amended claims and following arguments for patentability, that the Examiner's objection to claims 4, 5, 10 and 16 has been rendered moot. Accordingly, all of the claims for this application are now in condition for allowance.

II. Response to Rejection of Claims 6-9 and 13 under 35 U.S.C. §112, second paragraph

Claims 6-9 and 13 have been rejected under 35 U.S.C. §112, second paragraph, for being indefinite.

A. The Examiner considers dependent claims 6-9 indefinite for lacking antecedent basis, namely, the claims recite the limitation for “hydrophobic groups”, “hydrophilic” or “hydrophobic to hydrophilic groups”, when Claim 1 lacks this recital.

Applicants have reinstated the limitation “having a surface comprising a mixture of hydrophobic groups and hydrophilic groups” into step (b) of Claim 1. Accordingly, Claims 6-9 have been rendered definite.

B. According to the Examiner, Claim 13 is indefinite for reciting the phrase “the proteinaceous material and the solid phase are separated by magnetic beads”, when it is not technically apparent how this can be achieved.

Applicants submit that the originally intended meaning of the claim is that once the protein is eluted from the magnetic particle, the particle can then be removed by magnetic separation (see, for example, page 9, lines 19-21 of the present specification). Accordingly, Claim 13 has been amended to recite the intended meaning with more particularity and to depend from claim 4. Claim 4 (and Claim 5) is directed to a magnetic particle and would lend proper antecedent basis to amended claim 13.

III. Response to Rejection of Claims 1-3, 6, 11 and 14 under 35 U.S.C. §102(b)

Claims 1-3, 6, 11 and 14 are rejected under 35 U.S.C. §102(b) as being anticipated by Belew (J. Chromatography A, 679, 67-83 (1994)).

The Examiner has considered but is not persuaded by arguments that Belew does not teach or suggest the existence of both hydrophobic and hydrophilic groups on the surface of a solid phase for purifying a protein since the pending claims do not recite the limitation that the solid surface should contain both hydrophilic and hydrophobic groups.

Applicants submit that step (b) of Claim 1 has been amended by reinstating the limitation for “a solid phase having a surface comprising a mixture of hydrophobic groups and hydrophilic groups” to distinguish the claims from Belew. Accordingly, withdrawal of this rejection is deemed proper.

IV. Response to Rejection of Claims 1-3, 6 and 11 under 35 U.S.C. §102(e)

Claims 1-3, 6 and 11 are rejected under 35 U.S.C. §102(e) as being anticipated by Smeds (USPN 6,005,082).

The Examiner has considered but is not persuaded by arguments that Smeds does not teach or suggest the existence of both hydrophobic and

hydrophilic groups on the surface of a solid phase for purifying a protein since the pending claims do not recite the limitation that the solid surface should contain both hydrophilic and hydrophobic groups.

Applicants submit that step (b) of Claim 1 has been amended by reinstating the limitation for "a solid phase having a surface comprising a mixture of hydrophobic groups and hydrophilic groups" to distinguish the claims from Smeds. Accordingly, withdrawal of this rejection is deemed proper.

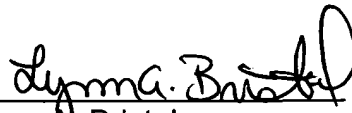
CONCLUSION

In view of the foregoing amended claims and arguments for patentability of the claims, Applicants submit that the Examiner's rejection of the claims under 35 U.S.C. §§102(b), 102(e) and 112, second paragraph, have been met and overcome. That is, clear differences exist between the present invention as claimed and the prior art relied upon by the Examiner. These differences are more than sufficient that the present invention as claimed would not have been obvious to one of ordinary skill in the art at the time the invention was made viewing that prior art. Applicants submit that the claims as well as the entire application are now in condition for allowance, and the Examiner is requested to allow this application to pass to issuance.

Application No.: 09/760,379

Please charge any fee deficiency or credit any overpayment to Deposit Account
No. 01-2300 under Client Matter No. 100564-09055.

Respectfully submitted,


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MARKED-UP COPY OF AMENDED CLAIMS

1. (Twice Amended) A process for isolating a proteinaceous material in an aqueous sample comprising the steps:

(a) providing the aqueous sample comprising the proteinaceous material,

(b) contacting the aqueous sample with a solid phase having a surface comprising a mixture of hydrophobic groups and hydrophilic groups for binding the proteinaceous material to the solid phase,

(c) removing unbound components from the solid phase of (b), and

(d) thereafter, isolating the proteinaceous material by eluting the proteinaceous material from the solid phase.

13. (Twice Amended) The process according to claim [1] 4, wherein after [elution] eluting the proteinaceous material [and] from the [solid phase are separated by] magnetic [beads] particle, the magnetic particle is removed by magnetic separation.